Lonely Rider

Tactical miniature unattended wireless ground sensor (T-UGS) system to maintain continuous terrain dominance

Elbit Systems™
C4I and Cyber

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Enemy force detection within complex terrains and environments is vital in today's dynamic and unpredictable battlefield. This requirement goes beyond intermittent patrols by manned or unmanned forces; it demands continuous, extended surveillance over these areas.

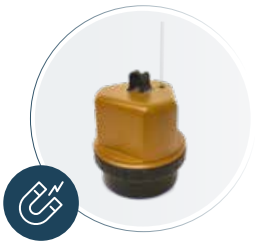
Lonely Rider utilizes multi-modal sensors to autonomously monitor unattended urban, forested, open, mountainous, and underground environments. The accurate and early detection of human and vehicular activity significantly increases force lethality, efficacy and survivability. Deployed manually or autonomously via drone, the sensors offer a range of continuous monitoring periods to allow for the maximum number of operational scenarios. The lightweight tactical sensors enable multi-mission capabilities, making Lonely Rider ideal for force protection, border and site protection and intelligence, surveillance and reconnaissance (ISR) applications.

A variety of small multi-modal sensors

Seismic Sensor

Doppler Radar Sensor

Radar Day/Night Camera

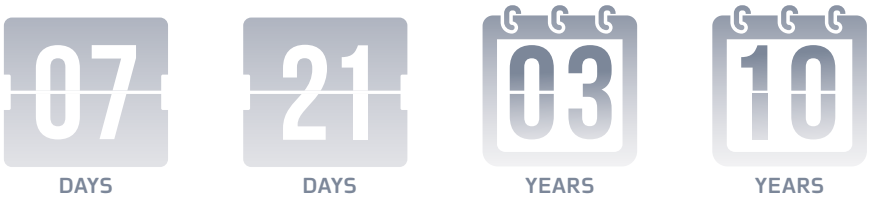


Magnetic Sensor

Communication Relay

Flexible monitoring timeframes

The system provides a broad range of continuous monitoring periods, including 7 days (rechargeable), 21 days (compact), 3 years (continuous operation), and 10 years (sleep mode).



Multiple deployment options

Autonomous Dropping | Autonomous Lowering | Manually Deployment

Multi-mission capabilities

Force protection and ambush | Border and site protection | BLOS monitoring of key points for intelligence, surveillance, and reconnaissance (ISR) | Detection of mounted and dismounted targets

Operational in diverse environments and terrains

Outdoor | Forested/Vegetation | Underground | Urban

Robust communication:

- The system leverages a self-forming and self-healing mesh network
- Robust operation at zero elevation
- Using minimal spectrum resources

Variety of solutions to remotely communicate with the field

- RF hub/relay - up to 500m between two units
- RF directional antenna – up to 5Km
- Cellular hub – in each area with LTE coverage

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Key Features

- Multi-modal sensors
- Unique and reliable communication solution
- Real-time multi-sensor data fusion
- Simultaneous, multiple target identification and separation
- Anti-lift feature
- Ultra-low power consumption
- Lightweight and small footprint
- Simple and user friendly
- Ability to operate standalone or to integrate into C⁴I systems
- MIL-STD 810H qualification

Operational Benefits

- Tactical, continuous, wireless monitoring ability
- Suitable for diverse environments
- Force, Site & Border Protection and ISR capabilities
- Flexible monitoring timeframes for up to 10 years (rechargeable and non-rechargeable)
- Tracking mounted and dismounted targets
- Targets tracking and classification
- BLOS - Aerial autonomous deployments by drones

Multi-Modal Sensors

Sensor Type	Size	Weight	Details
Seismic sensor	Φ4.8 x 5.7cm	138g	Detection range up to 70m for human target (NLOS) and 120 meters for vehicle Line of sight is not required – sensor may be buried
Doppler radar sensor	Φ8.3 x 5cm	180g	Detection range up to 60m for human target (LOS) with DF abilities
Multi-sensor (radar, day camera, bolometric camera)	Φ8.3 x 8.8cm	260g	Day camera recognition range up to 50m, bolometric up to 25m, 360° Cameras operated on Radar detection
Magnetic-sensor	Φ8.3x 7.9cm	385g	Detection of armed targets and vehicles
Communication relay	Φ8.3 x 5cm	200g	915MHz / Cellular

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